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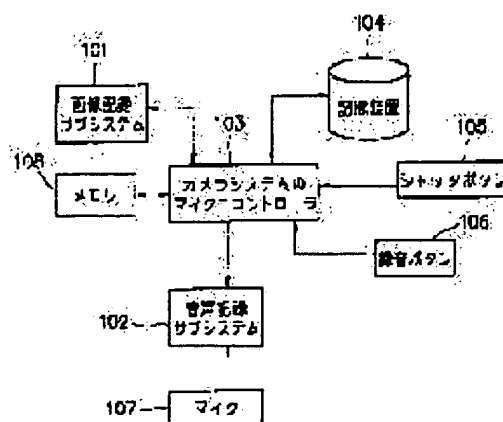
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## (54) IMAGE-PICKUP DEVICE, RECORDING MEDIUM READ BY COMPUTER AND AUDIO FILE-GENERATING METHOD

(57)Abstract:

**PROBLEM TO BE SOLVED:** To easily manage an audio file in the case of generating the audio file, corresponding to an image file in an electronic camera that is capable of recording sound.

**SOLUTION:** When a shutter button 105 is depressed, an image recording sub-system 101 generates an image file via a micro controller 103 and stores the file in a storage device 104. When a recording button 106 is depressed and a microphone 107 picks up a sound, an audio recording sub-system 102 generates an audio file and it is stored in the storage device 104 corresponding to the image file. Then every time the recording button is depressed and new sound is picked up, audio information is added to the audio file. Furthermore, when the shutter button 105 is depressed again, a new image file is generated, sound is picked up, and a new audio file is generated. As a result, one audio file is generated at all times with respect to one image file.



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CLAIMS

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[Claim(s)]

[Claim 1] The image pick-up equipment carry out having prepared the voice file-creation means perform the processing creates the voice file which contains the speech information which carried out [ above-mentioned ] an input in the image pick-up equipment which enabled it to record the speech information which inputted from a voice-input means while having recorded the image information which picturized, and a storage means makes processing memorize, and the control means carry out the processing add this speech information to the voice file by which storage was carried out [ above-mentioned ] when speech information newly inputs as the description.

[Claim 2] the above -- the image pick-up equipment according to claim 1 characterized by establishing a selection means to choose whether this speech information is added to the voice file by which storage was carried out [ above-mentioned ] when speech information newly inputs, or a voice file is newly created.

[Claim 3] Image pick-up equipment according to claim 1 or 2 characterized by preventing from reproducing the speech information which established a password data grant means to give password data to the above-mentioned voice file, and was recorded as a voice file with the above-mentioned password data without a password entry of data.

[Claim 4] It is image pick-up equipment according to claim 1 characterized by establishing an image file creation means to perform processing which creates the image file containing the image information which carried out [ above-mentioned ] the image pick-up, and the above-mentioned storage means is made to memorize, and the above-mentioned voice file creation means creating the above-mentioned image file and a corresponding voice file with the response information.

[Claim 5] The above-mentioned image file creation means is image pick-up equipment according to claim 4 characterized by giving the file name of a proper to the image file which carries out sequential creation, respectively.

[Claim 6] The above-mentioned control means is image pick-up equipment according to claim 4 characterized by performing processing which adds the above-mentioned speech information to the newest voice file until a new image file is created.

[Claim 7] It is image pick-up equipment according to claim 4 which establishes a display means to display the image file by which storage is carried out [ above-mentioned ], and is characterized by the above-mentioned control means adding the voice file as extra information to the image file currently displayed on the above-mentioned display means.

[Claim 8] The above-mentioned control means is image pick-up equipment according to claim 7 characterized by it being possible to add the voice file as extra information to all the image files saved for the above-mentioned storage means, respectively.

[Claim 9] Image pick-up equipment according to claim 7 characterized by establishing an information means to report whether the voice file as extra information already exists to the image file currently displayed on the above-mentioned display means, and a playback means to reproduce the speech information contained in the above-mentioned voice file.

[Claim 10] It is image pick-up equipment according to claim 9 which establishes a password data grant means to give password data to the above-mentioned voice file, prevents from reproducing the speech information recorded as a voice file with the above-mentioned password data without a password entry of data, and is characterized by a different mode according to the existence of password data reporting the above-mentioned information means.

[Claim 11] The record medium possible in computer reading recorded the program for performing the processing creates the image file containing the picturized image information, and a storage means makes processing memorize, the processing make the voice file containing the inputted speech information correspond with the above-mentioned image file, create, and the above-mentioned storage means makes processing memorize, and the processing add the speech information newly inputted by the time a new image file was created to the newest voice file.

[Claim 12] the above -- the record medium which is characterized by preparing the processing which chooses whether processing which adds the newly inputted speech information is performed, or a voice file is newly created and in which computer reading according to claim 11 is possible.

[Claim 13] The record medium which is characterized by preparing the processing which adds the voice file as extra information to the image file which is made to display the image file memorized according to directions, and is displayed and in which computer reading according to claim 11 is possible.

[Claim 14] The record medium which is characterized by preparing the processing which reports whether the voice file as extra information already exists to the image file which is giving [ above-mentioned ] an indication and in which computer reading according to claim 13 is possible.

[Claim 15] The record medium which can computer read a publication in any 1 term of claims 11-14 characterized by preparing the processing which gives password data to the above-mentioned voice file.

[Claim 16] The record medium with which the voice file which was made to correspond with the image file containing the picturized image information and the image file which carried out [ above-mentioned ] the image pick-up including one or more speech information inputted by the time a new image file was created, and was created was recorded and in which computer reading is possible.

[Claim 17] The voice file-creation approach of having made this speech information add to the voice file by which storage was carried out [ above-mentioned ] when create the voice file which contains the speech information which carried out [ above-mentioned ] the input in the voice file-creation approach in the image pick-up equipment which enabled it to record the speech information inputted from the voice-input means, make a storage means memorizing and speech information newly inputs, while having recorded the image information which picturized, and carrying out as the description.

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[Translation done.]

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DETAILED DESCRIPTION

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[Detailed Description of the Invention]

[0001]

[Field of the Invention] This invention relates to image pick-up equipment, the record medium in which computer reading is possible, and the voice file creation approach.

[0002]

[Description of the Prior Art] Drawing 13 shows the tooth back of the conventional electronic camera with the function which records speech information. In drawing 13, a sound recording carbon button for a user to direct record of speech information to a camera, as for a shutter carbon button for a user to direct record of an image to a camera, as for a finder for 21 to check a photographic subject and the image to record and 105 and 106 and 107 show the microphone for incorporating voice.

[0003] If the shutter carbon button 105 is pushed, an electronic camera captures the image reflected to the finder 21, and saves it as a file at the storage in an electronic camera. Moreover, if speech information can be saved as a file at the store in an electronic camera and the sound recording carbon button 106 is detached by inputting voice toward a microphone 107, pushing the sound recording carbon button 106, record of speech information will be stopped. Record of speech information is performed in order to give extra information to photography and the recorded image recently. In addition, an image cannot perform record of speech information in the condition that one sheet is not incorporated, either.

[0004] Drawing 14 shows the flow chart of the file creation processing by the image and voice record by the conventional approach. When a new file is created, (1) shutter carbon button 105 is pushed and image data is incorporated [ \*\*\*\*\* ], there are two kinds when (2) sound-recording carbon button 106 is pushed and voice data is incorporated. In addition, in an image file, jpg and a voice file set \*\*\*\*\* to wav for \*\*\*\*\* (character string below a dot ".") of a file name.

[0005] Hereafter, the processings 30-37 of drawing 14 are explained. First, Variable FileNo is initialized by 30. The approach of initialization searches the file memorized by the storage in an electronic camera, and is initialized with the biggest value among the prefix children of the file memorized. For example, when five files, 1.jpg, 2.jpg, 3.jpg, 4.wav, and 5.jpg, are now memorized by storage, Variable FileNo is initialized by 5. In addition, an image and a voice file are initialized by 0, when one sheet is not memorized, either. Since it is known widely, the approach of searching the file memorized by storage is not explained especially here.

[0006] Next, by 31, only 1 increments the value of Variable FileNo. Next, by 32, the file to create judges a voice file or an image file, and if it is an image file, an image file called a file name "FileNo.jpg" will be created by 33. On the other hand, if the file to create is a voice file, in order to judge whether the image file is already created, the value of FileNo is investigated by 34, and if the value of FileNo is 1, progress processing will be ended to 37, without an image creating a voice file, since one sheet is not incorporated, either. If the value of FileNo is not 1, since the image is already captured, a voice file called a file name "FileNo.wav" is created by 35. The created image and voice file are registered into a management file by 36.

[0007] If the flow so far is summarized, a file new whenever image data and voice data are incorporated.

will be created, and the file which created will be registered into a management file. A management file is a file to show the extra information over which image file a voice file is.

[0008] The processing flow of the registration to a management file to drawing 15 is shown. The file name of one image file and the file name of the voice file which is the extra information over the image file are included in the management file. A management file is expressed with an identifier like 1.ctg and 2.ctg. \*\*\*\*\* ctg below the dot of a management file name is an identifier which shows that it is a management file.

[0009] In drawing 15, initial value of the value of Variable CtgNo is first carried out by 40. The approach of initialization searches the file memorized by the storage in an electronic camera, and is initialized with the biggest value among the prefix children of the management file memorized. For example, when four management files, 1.ctg, 2.ctg, 3.ctg, and 4.ctg, are now memorized by storage, Variable CtgNo is initialized by 4. In addition, a management file is initialized by 0, when one sheet is not memorized, either.

[0010] Next, by 41, the file to register judges a voice file or an image file, and if it is an image file, only 1 will increment the value of a global variable CtgNo by 42. Next, an image file name is registered into the management file "CtgNo.ctg" which created the management file by the identifier of "CtgNo.ctg" 43, and was created by 44. If the file registered by 41 is a voice file, a voice file name will be registered into a management file "CtgNo.ctg" by 45.

[0011] One image file name and the file name of the voice file created after creating one image file before creating an image file new next are registered into one management file. For example, when the voice as extra information to the image which pushed the shutter carbon button in the condition that nothing is recorded on the store, recorded the image, and was recorded the back with the conventional electronic camera is continued and it records 3 times, four the image and voice files of 1.jpg, 2.wav, 3.wav, and 4.wav, and one management file 1.ctg are created. A total of four file names, image file 1.jpg and three voice file 2.wav(s), 3.wav, and 4.wav, are registered into management file 1.ctg, and it is identified by management file 1.ctg that voice file 2.wav, 3.wav, and 4.wav are the extra information files of image file 1.jpg.

[0012] A voice file new whenever voice is recorded with the conventional electronic camera as having stated above is created, and two or more voice files are created as extra information of one image file.

[0013]

[Problem(s) to be Solved by the Invention] When a voice file new like before whenever it records speech information was created, there was a trouble that much voice files were created. Moreover, there was a trouble that the voice file as extra information to one image accomplished two or more works.

[0014] Consequently, in order to make voice to an image refreshable good, there was a problem that it will be necessary to prepare the file for link management which memorized the information which shows which voice file corresponds to an image file. Moreover, also when an image file was eliminated, it must stop having had to eliminate the voice file with reference to the file for link management, and there was also a problem of taking time and effort.

[0015] Moreover, if it did not refer to the file for link management that there is a voice file which is the extra information over the same image as the voice file searched in voice files other than the voice file which had it searched whether the extra information over which image the searched voice file is when the voice file memorized by the record medium in which computer reading is possible is searched by updating time amount etc., the trouble do not understand was.

[0016] This invention aims at offering the image pick-up equipment, the record medium in which computer reading is possible, and the voice file creation approach which solved the above troubles. Moreover, this invention aims at it being efficient and enabling creation of the voice file corresponding to an image file. Moreover, in case this invention deletes an image file, it also aims the voice file corresponding to the image file at offering the image pick-up equipment, the record medium in which computer reading is possible, and the voice file creation approach whose deletion is enabled easily. Furthermore, this invention sets it as the further object to offer the image pick-up equipment, the record medium in which computer reading is possible, and the voice file creation approach of having a new

function.

[0017]

[Means for Solving the Problem] In the image pick-up equipment which enabled it to record the speech information inputted from the voice input means while recording the picturized image information in the image pick-up equipment by this invention A voice file creation means to perform processing which creates the voice file containing the speech information which carried out [ above-mentioned ] the input, and a storage means is made to memorize, and the control means which performs processing which adds this speech information to the voice file by which storage was carried out [ above-mentioned ] when speech information newly inputs are prepared.

[0018] In the record medium by this invention in which computer reading is possible The processing which creates the image file containing the picturized image information, and a storage means is made to memorize, The processing which make the voice file containing the inputted speech information correspond with the above-mentioned image file, creates, and the above-mentioned storage means is made to memorize, The program for performing processing which adds the speech information newly inputted by the time a new image file was created to the newest voice file is recorded.

[0019] Moreover, the voice file which was made to correspond with the image file which contains the picturized image information in other modes of a record medium by this invention in which computer reading is possible, and the image file which carried out [ above-mentioned ] the image pick-up including one or more speech information inputted by the time a new image file was created, and was created is recorded.

[0020] While recording the picturized image information in the voice file-creation approach by this invention, when create the voice file which contains the speech information which carried out [ above-mentioned ] the input in the image pick-up equipment which enabled it to record the speech information inputted from the voice-input means, make a storage means memorize and speech information newly inputs, this speech information is making add to the voice file by which storage was carried out [ above-mentioned ].

[0021]

[Embodiment of the Invention] Hereafter, the gestalt of operation of this invention is explained with a drawing. The tooth-back configuration of the electronic camera by the gestalt of operation of the 1st of this invention is shown in drawing 10 . In addition, in drawing 10 , the same number as the part of the same function as drawing 13 is attached.

[0022] In drawing 10 , after pushing the shutter carbon button 105 and capturing an image, speech information can be saved as extra information over the image captured just now by inputting voice toward a microphone 107 at the storage in an electronic camera, pushing the sound recording carbon button 106. If the sound recording carbon button 106 is detached, record of speech information will be stopped. Furthermore, by pushing the sound recording carbon button 106 continuously, it is possible to add the speech information as extra information to the image recorded most newly. In addition, an image cannot record voice in the condition that one sheet is not incorporated, either.

[0023] Drawing 1 shows the block diagram of the electronic camera by the gestalt of the 1st operation. In drawing 1 , a user's push of the shutter carbon button 105 notifies that to the microcontroller 103 of a camera system. The microcontroller 103 which has a microcomputer directs incorporation of an image to the image recording subsystem 101. The image data incorporated by the image recording subsystem 101 according to these directions is saved as an image file by the microcontroller 103 at the storage 104, such as a compact flash memory.

[0024] Moreover, a user's push of the sound recording carbon button 106 notifies that to the microcontroller 103 of a camera system. In response, a microcontroller 103 directs incorporation initiation of voice data to the voice record subsystem 102. If the trailing edge sound carbon button 106 is detached and it becomes off, as for a microcontroller 103, incorporation termination of voice data is directed to the voice record subsystem 102. The voice data incorporated from the microphone 107 by the voice record subsystem 102 according to these directions is saved as a voice file by the microcontroller 103 at storage 104.

[0025] In addition, what is necessary is just to record using the approach currently indicated by JP,7-184160,A, for example, although the record approach of an image and voice is not explained especially here since it is well known for this contractor.

[0026] Moreover, although 108 is the record medium which recorded the program for performing processing which the microcomputer of a microcontroller 103 mentions later and semiconductor memory, such as ROM, is used, depending on the case, a floppy disk, a hard disk, an optical disk, a magneto-optic disk, CD-ROM, a non-volatile memory card, a magnetic medium, etc. can be used, for example.

[0027] Drawing 2 shows the flow chart of the file creation processing performed using the program which the microcomputer of a microcontroller 103 recorded on memory 108. By 50, Variable FileNo is initialized first. Variable FileNo is held at the memory which can write non-volatiles, such as EEPROM which is not illustrated in a microcontroller 103, and is initialized by 0 at the time of camera shipment.

[0028] The approach of initialization searches the file memorized by storage 104, and acquires the biggest value among the prefix children of the image file memorized. This acquired value is held to Variable FileNoFound. And the value of Variable FileNo is compared with the value of Variable FileNoFound, and the value of the bigger one is set as Variable FileNo. When an example is given, FileNo is 0 and FileNoFound is 4, the value of Variable FileNo is set as 4.

[0029] Next, it judges whether by 51, voice data is recorded for whether image data is recorded, and if it is image data, only 1 will increment the value of Variable FileNo by 52. The variable FileNo by which the increment was carried out is reset and held at the commutative memory in a microcontroller 103. Next, by 53, a file name creates the image file of "FileNo.jpg."

[0030] Two or more image files which all the file names of the image file which a camera creates in the whole life will become unique, and have the same file name by processing of the above 50, 51, 52, and 53 are not created. Also when installation and the dismountable commutative medium of CF (compact flash plate) etc. are used for storage 104, two or more image files which have the same file name in the whole life of a camera are not created. Moreover, the image file which has the same file name as the image file which already exists in storage 104 is not created.

[0031] When judged with recording voice data by processing of the above 51, in order to judge whether the image is already captured, it judges whether the value of Variable FileNo is 0 in 54. Supposing it is 0, since one sheet is not incorporated, either, an image will be completed without creating a voice file.

[0032] On the other hand, not 0 but when an image already exists, in order to judge whether the voice file as extra information of as opposed to an image file "FileNo.jpg" in the value of Variable FileNo already exists by processing of 54, it investigates whether a voice file "FileNo.wav" exists by 55. If a voice file "FileNo.wav" does not exist, since the voice file as extra information to an image file "FileNo.jpg" does not exist yet, the voice file "FileNo.wav" which is an extra information file to an image file "FileNo.jpg" is newly created by 56.

[0033] When it is judged that the voice file "FileNo.wav" of extra information to an image file "FileNo.jpg" already exists by processing of the above 55 in the case of record of speech information, the speech information newly recorded by 57 is added to the last of the voice file "FileNo.wav" which already exists.

[0034] If the sound recording carbon button 106 is pushed and voice is recorded after it will push the shutter carbon button 105 and a file name will create the image file "FileNo.jpg", if the above is summarized, the voice file "FileNo.wav" which has the same prefix child as a corresponding image file will be created. Then, the voice data which will be further recorded by the time the shutter carbon button 105 is pushed next and an image is newly recorded is added to the last of the voice file "FileNo.wav" already created. Thereby, an image file and the voice file which is the extra information correspond to 1:1 as a file with the same prefix child.

[0035] Therefore, if it exists, in order to judge whether the voice file which is the extra information over an image file "FileNo.jpg" exists, and which file it is It judges whether a voice file "FileNo.wav" with the same prefix child name as the prefix child name "FileNo" of the identifier "FileNo.jpg" of an image file exists. If it does not exist, the voice file as extra information to an image file "FileNo.jpg" does not



exist. If a file "FileNo.wav" exists, the voice file which is the extra information over an image file "FileNo.jpg" exists, and it turns out that the file name is "FileNo.wav."

[0036] In addition, since the file name of the voice file which a camera creates is decided based on the prefix child of an image file, it will become unique like an image file. Therefore, two or more voice files which have the same file name in the whole life of an electronic camera are not created. Also when installation and the dismountable commutative medium of CF (compact flash plate) etc. are used for storage 104, two or more voice files which have the same file name in the whole life of a camera are not created. Moreover, the voice file which has the same file name as the voice file which already exists in storage 104 is not created.

[0037] It is reset, after following, for example, creating the file of the predetermined number of files (for example, 100 pieces), and with the equipment which creates the file of the file No1 which is the 2nd time, two, the file of 1st No1 and the file of 2nd No1, exist. When the image file "FileNo1.jpg" corresponding to a voice file "FileNo1.wav" is searched in this case, two image files "FileNo1.jpg" will be searched and file management is impossible good. However, since the file of the same file name is not created with this operation gestalt, this fault is cancelable.

[0038] As mentioned above, since the speech information newly recorded on the last of the existing voice file is added without making a voice file newly when speech information is newly recorded to the image with which the speech information as extra information is already recorded according to the gestalt of this operation, the voice file as extra information to one image file can be set only to one. Moreover, since the file name which has the same prefix child as a file name of an image file and the voice file which is the extra information is given, even if there is no file for link management, mutual response relation is easily manageable.

[0039] Moreover, in order that a camera may give the image and voice file name of a proper to all files in the whole life, a voice file becomes possible [ getting to know the extra information over which image file it is ] from the file name of a voice file. On the contrary, if there is whether there is any voice file as extra information to the image file, it will become possible [ getting to know which it is ] from the file name of an image file. Therefore, also when deleting a certain image file, for example, the voice file corresponding to the image file can be deleted easily.

[0040] Next, the gestalt of the 2nd operation is explained. Drawing 3 shows the tooth back of the electronic camera by the gestalt of the 2nd operation. The difference from the gestalt of the 1st operation is a thing which were mentioned above and for which the liquid crystal panel 61, the above carbon button 62, the down carbon button 63, and the security switch 165 are added. A user uses a liquid crystal panel 61, in order that it may be UI to which a camera performs an inquiry etc. to a user and the above carbon button 62 and the down carbon button 63 may choose processing for an inquiry through a camera to the liquid crystal panel 61 at the time of a carrier beam.

[0041] Drawing 4 is the block diagram of the electronic camera by the gestalt of the 2nd operation. The difference from the gestalt of the 1st operation is that the indicating equipment 71 which was mentioned above and which used the above-mentioned liquid crystal panel 61, the vertical direction carbon button 72 which consists of the above-mentioned above one and the down carbon buttons 62 and 63, and the security switch 165 are added. When it is necessary to display the information on a camera to a user, the microcontroller 103 of a camera system displays information on a display 71.

[0042] With the gestalt of the 1st operation, when voice was further recorded to the image with which the voice file is already recorded as extra information, voice data was added to the last of the voice file which already exists by any cases. With the gestalt of the 2nd operation, as shown in drawing 5, the screen which asks a user whether add the voice data to record to the last of the existing file or remake a voice file newly is displayed on a liquid crystal panel 61, and processing specified by the user is performed. A user chooses an art with the above carbon button 62 and the down carbon button 63. In order to tell a user about which processing is chosen, highlighting of the art 81 chosen is carried out. Processing chosen when the shutter carbon button 105 was pushed by the user is performed.

[0043] Although the file creation processing in the gestalt of this 2nd operation is the same as that of the flow chart shown in drawing 2 almost, the difference from drawing 2 is processing of 57 which adds the

recorded voice data to the last of the existing voice file. That is, processing of 57 replaces the processing flow shown in drawing 6 .

[0044] In drawing 6 , an art is first asked to a user by 91. An inquiry is performed by displaying a screen as shown in the liquid crystal panel 61 by drawing 5 . The voice data which remade the file (however, a file name is the same), and was recorded to the remade file is recorded 93 newly [ when adding voice data to the last of the existing file by 92 when adding the voice data to record to the last of the existing file is directed to a user, and remaking a file newly is directed ].

[0045] When audio record is directed to the voice file as extra information by the user to the image which already exists according to the gestalt of this operation, a camera can ask a user whether a voice file is merged to the last of the existing file, or a voice file is remade newly, and a user can choose to this. That is, whether voice's being added as extra information and the existing voice can be canceled, and it can choose freely whether it is \*\*\*\*\* for extra information.

[0046] In addition, there are some which be not listened to in addition to the operator who remade the voice file depending on the content of the voice file to remake. The sake [ in this case ], the security switch 165 was formed in the electronic camera of this operation gestalt. If an operator operates and directs this security switch 165, the screen for password data inputs will be displayed on a liquid crystal panel 61.

[0047] On the other hand, an operator uses the above carbon button 62 and the down carbon button 63 in a desired combination, and directs password data (for example, after pushing the above carbon button 62 twice, the down carbon button 63 is pushed 3 times). After these directions, the voice recorded by the operator is not recorded in the form of "an addition at the last of the existing voice file", but is recorded as a new file. It becomes impossible and to reproduce the voice of this new file without the password entry of data by which the input was carried out [ above-mentioned ].

[0048] Next, the gestalt of the 3rd operation is explained. Drawing 7 shows the tooth back of the electronic camera by the gestalt of the 3rd operation. The differences from the gestalt of operation of the 2nd of drawing 3 mentioned above are that the repeat display carbon button 109 and the playback section 65 are added and that there is no security switch 165. A push on the repeat display carbon button 109 displays the image photoed at the very end on a liquid crystal panel 61. If the image photoed by the degree of the image which is indicating by current when the above carbon button 62 was pushed is displayed on a liquid crystal panel 61 and the down carbon button 63 is pushed in the condition of displaying the photoed image on the liquid crystal panel 61, the image photoed in front of the image which is indicating by current will be displayed on a liquid crystal panel 61.

[0049] Drawing 8 is the block diagram of the electronic camera by the gestalt of the 3rd operation. The differences from the gestalt of operation of the 2nd of drawing 4 mentioned above are that the repeat display carbon button 109 and the playback section (loudspeaker) 65 are added and that there is no security switch 165. When the repeat display carbon button 109 is pushed, the microcontroller 103 of a camera system displays an image for the image photoed by the last from storage 104 on ejection and a display 71.

[0050] If the vertical direction carbon button 72 which consists of the above-mentioned above carbon button 62 and the down carbon button 63 is pushed in the condition that the image is displayed on the indicating equipment 71, the repeat display of the image photoed by the indicating equipment 71 before and behind the image by which it is indicated by current will be carried out to an indicating equipment 71. That is, when the above carbon button 62 is pushed, the microcontroller 103 of a camera system displays the image photoed by the display 71 just after the image by which it is indicated by current on ejection and a display 71 from storage 104. On the other hand, when the down carbon button 63 is pushed, the microcontroller 103 of a camera system displays the image photoed just in front of the image by which it is indicated by current on a display 71 from storage 104 at ejection and a display 71.

[0051] With the gestalt of the 1st and the 2nd operation, although the speech information as extra information was able to be added only to the newest image file, according to the gestalt of this 3rd operation, it becomes possible also to image files other than the newest image file to new-create and to add the speech information as extra information. That is, it makes it possible to display the photoed

image on a liquid crystal display, and to perform new creation and an addition of speech information also to the image which is indicating by current.

[0052] Not only the image photoed most recently but the image photoed in the past can be displayed on a liquid crystal display. Therefore, it makes it possible to add the speech information as extra information to all the image files currently held at storage 104 only to the image photoed most recently also about speech information.

[0053] Drawing 9 shows the processing flow of voice file creation when the sound recording carbon button 106 is pushed, when the repeat display of the image is carried out to the liquid crystal panel 61. By 94, the file name "FileNo.jpg" of the image file by which it is indicated by current is first acquired to a liquid crystal panel 61. Next, it judges whether a voice file "FileNo.wav" exists and a voice file "FileNo.wav" does not exist by 55, since the voice file as extra information to the image file "FileNo.jpg" by which it is indicated by current does not exist in a liquid crystal panel 61, the voice file "FileNo.wav" which is an extra information file to an image file "FileNo.jpg" is newly created by 56.

[0054] On the other hand, when the voice file "FileNo.wav" as extra information to the image file "FileNo.jpg" displayed on the liquid crystal panel 61 now already exists by processing of the above 55, the speech information newly recorded by 57 is added to the last of the voice file "FileNo.wav" which already exists. Processing of drawing 9 of 55-57 is completely the same as the processing performed by 55-57 of drawing 2. Moreover, processing of 57 may be transposed to the processing shown in drawing 6.

[0055] With this operation gestalt, recognition also to an operator is enabled about whether the voice file "FileNo.wav" as extra information to an image file "FileNo.jpg" exists. That is, it judges whether the voice file as extra information exists in the image file from which the microcontroller 103 of a camera system was taken out whenever the image file taken out from storage 104 by actuation of the above carbon button 62 and the down carbon button 63 changed.

[0056] And when a voice file exists, a display image is displayed for the alphabetic character 64 of "W" which shows existence of a voice file to a liquid crystal panel 61 in piles like drawing 7. Since it can recognize that the voice file as extra information already exists from existence of the alphabetic character 64 of this "W" to a display image, an operator reproduces the voice file which already exists by the playback section 65, and after recognizing the existence of the need of supplementing with speech information further, if required, he can add speech information.

[0057] In addition, it is made possible [ the security mode mentioned above ] also in this 3rd operation gestalt. In this case, when the image which has the extra information in security mode is displayed on a liquid crystal panel 61, the alphabetic character of "S" is displayed on the screen of a liquid crystal panel 61. The existence of speech information unreproducible unless an operator inputs password data by this display can be recognized. In addition, it can be set up with the switch which is not illustrated whether this "S" is displayed.

[0058] Next, the operation gestalt which searched updating time amount for the voice file recorded on the record medium in which computer reading is possible by the gestalt of the above 1st, the 2nd, and the 3rd operation as a key by computer is shown. Drawing 11 shows an example of the list of the files recorded with the camera to the record medium in which computer reading is possible. This list expresses a file name and its updating time amount. A format of updating time amount is as being shown in drawing 12.

[0059] For example, when retrieval conditions are set up by computer on and after April 1, 1998 and this list is searched, a voice file "6.wav" is in agreement with retrieval conditions. According to the gestalt of this operation, it can distinguish from a file name that this searched voice file "6.wav" is the extra information with the same prefix child of an image file "6.jpg." In addition, since it is known widely, the approach of recording updating time amount on a file and the method of searching a file by updating time amount are not explained especially here.

[0060]

[Effect of the Invention] As explained above, according to this invention, by one voice file, two or more speech information can be managed and file management can be performed easily. Moreover, since only

one voice file is saved to one image file by making it correspond with an image file and creating a voice file, file management can be performed easily. Therefore, also when deleting a certain image file, for example, the voice file corresponding to the image file can be deleted easily.

[0061] Moreover, when it is newly going to record speech information, a user can choose whether the speech information is added to the existing voice file, or a voice file is created newly. Moreover, when password data are given to a voice file, it can avoid reproducing the recorded speech information without a password entry of data.

[0062] Moreover, the speech information as extra information to the photoed image is recordable in the form of a file, looking at the photoed image on a display. Furthermore, the voice data as extra information is recordable with new creation of a file, or an addition at the last of the existing file to all the image files currently held not only at the image photoed most recently but at the store. Moreover, it can know whether the voice file as extra information already exists to the image file currently displayed on the display means, and can consider as the decision ingredient of whether for speech information to be further reproduced in that case, and to add extra information.

[0063] Moreover, since it can use when a computer performs processing which carries out until it adds to the existing voice file and a new image file is created in this when according to the record medium by this invention in which computer reading is possible making it correspond with an image file, creating a voice file and recording speech information further, and only one voice file is created to one image file by this, file management can be performed easily. Moreover, processing which chooses whether new speech information is added to the existing voice file or a voice file is created newly can be performed. Moreover, the speech information as extra information to the photoed image is recordable in the form of a file, looking at the photoed image on a display. Moreover, when the voice file recorded on the record medium in which computer reading is possible is searched by updating time amount etc., the searched voice file becomes [ the extra information over which image file it is, and ] possible [ distinguishing from a file name ].

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[Translation done.]

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TECHNICAL FIELD

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[Field of the Invention] This invention relates to image pick-up equipment, the record medium in which computer reading is possible, and the voice file creation approach.

[0002]

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[Translation done.]

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PRIOR ART

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[Description of the Prior Art] Drawing 13 shows the tooth back of the conventional electronic camera with the function which records speech information. In drawing 13, a sound recording carbon button for a user to direct record of speech information to a camera, as for a shutter carbon button for a user to direct record of an image to a camera, as for a finder for 21 to check a photographic subject and the image to record and 105 and 106 and 107 show the microphone for incorporating voice.

[0003] If the shutter carbon button 105 is pushed, an electronic camera captures the image reflected to the finder 21, and saves it as a file at the storage in an electronic camera. Moreover, if speech information can be saved as a file at the store in an electronic camera and the sound recording carbon button 106 is detached by inputting voice toward a microphone 107, pushing the sound recording carbon button 106, record of speech information will be stopped. Record of speech information is performed in order to give extra information to photography and the recorded image recently. In addition, an image cannot perform record of speech information in the condition that one sheet is not incorporated, either.

[0004] Drawing 14 shows the flow chart of the file creation processing by the image and voice record by the conventional approach. When a new file is created, (1) shutter carbon button 105 is pushed and image data is incorporated [ \*\*\*\*\* ], there are two kinds when (2) sound-recording carbon button 106 is pushed and voice data is incorporated. In addition, in an image file, jpg and a voice file set \*\*\*\*\* to wav for \*\*\*\*\* (character string below a dot ".") of a file name.

[0005] Hereafter, the processings 30-37 of drawing 14 are explained. First, Variable FileNo is initialized by 30. The approach of initialization searches the file memorized by the storage in an electronic camera, and is initialized with the biggest value among the prefix children of the file memorized. For example, when five files, 1.jpg, 2.jpg, 3.jpg, 4.wav, and 5.jpg, are now memorized by storage, Variable FileNo is initialized by 5. In addition, an image and a voice file are initialized by 0, when one sheet is not memorized, either. Since it is known widely, the approach of searching the file memorized by storage is not explained especially here.

[0006] Next, by 31, only 1 increments the value of Variable FileNo. Next, by 32, the file to create judges a voice file or an image file, and if it is an image file, an image file called a file name "FileNo.jpg" will be created by 33. On the other hand, if the file to create is a voice file, in order to judge whether the image file is already created, the value of FileNo is investigated by 34, and if the value of FileNo is 1, progress processing will be ended to 37, without an image creating a voice file, since one sheet is not incorporated, either. If the value of FileNo is not 1, since the image is already captured, a voice file called a file name "FileNo.wav" is created by 35. The created image and voice file are registered into a management file by 36.

[0007] If the flow so far is summarized, a file new whenever image data and voice data are incorporated will be created, and the file which created will be registered into a management file. A management file is a file to show the extra information over which image file a voice file is.

[0008] The processing flow of the registration to a management file to drawing 15 is shown. The file name of one image file and the file name of the voice file which is the extra information over the image file are included in the management file. A management file is expressed with an identifier like 1.ctg

and 2.ctg. \*\*\*\*\* ctg below the dot of a management file name is an identifier which shows that it is a management file.

[0009] In drawing 15, initial value of the value of Variable CtgNo is first carried out by 40. The approach of initialization searches the file memorized by the storage in an electronic camera, and is initialized with the biggest value among the prefix children of the management file memorized. For example, when four management files, 1.ctg, 2.ctg, 3.ctg, and 4.ctg, are now memorized by storage, Variable CtgNo is initialized by 4. In addition, a management file is initialized by 0, when one sheet is not memorized, either.

[0010] Next, by 41, the file to register judges a voice file or an image file, and if it is an image file, only 1 will increment the value of a global variable CtgNo by 42. Next, an image file name is registered into the management file "CtgNo.ctg" which created the management file by the identifier of "CtgNo.ctg" 43, and was created by 44. If the file registered by 41 is a voice file, a voice file name will be registered into a management file "CtgNo.ctg" by 45.

[0011] One image file name and the file name of the voice file created after creating one image file before creating an image file new next are registered into one management file. For example, when the voice as extra information to the image which pushed the shutter carbon button in the condition that nothing is recorded on the store, recorded the image, and was recorded the back with the conventional electronic camera is continued and it records 3 times, four the image and voice files of 1.jpg, 2.wav, 3.wav, and 4.wav, and one management file 1.ctg are created. A total of four file names, image file 1.jpg and three voice file 2.wav(s), 3.wav, and 4.wav, are registered into management file 1.ctg, and it is identified by management file 1.ctg that voice file 2.wav, 3.wav, and 4.wav are the extra information files of image file 1.jpg.

[0012] A voice file new whenever voice is recorded with the conventional electronic camera as having stated above is created, and two or more voice files are created as extra information of one image file.

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[Translation done.]

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EFFECT OF THE INVENTION

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[Effect of the Invention] As explained above, according to this invention, by one voice file, two or more speech information can be managed and file management can be performed easily. Moreover, since only one voice file is saved to one image file by making it correspond with an image file and creating a voice file, file management can be performed easily. Therefore, also when deleting a certain image file, for example, the voice file corresponding to the image file can be deleted easily.

[0061] Moreover, when it is newly going to record speech information, a user can choose whether the speech information is added to the existing voice file, or a voice file is created newly. Moreover, when password data are given to a voice file, it can avoid reproducing the recorded speech information without a password entry of data.

[0062] Moreover, the speech information as extra information to the photoed image is recordable in the form of a file, looking at the photoed image on a display. Furthermore, the voice data as extra information is recordable with new creation of a file, or an addition at the last of the existing file to all the image files currently held not only at the image photoed most recently but at the store. Moreover, it can know whether the voice file as extra information already exists to the image file currently displayed on the display means, and can consider as the decision ingredient of whether for speech information to be further reproduced in that case, and to add extra information.

[0063] Moreover, since it can use when a computer performs processing which carries out until it adds to the existing voice file and a new image file is created in this when according to the record medium by this invention in which computer reading is possible making it correspond with an image file, creating a voice file and recording speech information further, and only one voice file is created to one image file by this, file management can be performed easily. Moreover, processing which chooses whether new speech information is added to the existing voice file or a voice file is created newly can be performed. Moreover, the speech information as extra information to the photoed image is recordable in the form of a file, looking at the photoed image on a display. Moreover, when the voice file recorded on the record medium in which computer reading is possible is searched by updating time amount etc., the searched voice file becomes [ the extra information over which image file it is, and ] possible [ distinguishing from a file name ].

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TECHNICAL PROBLEM

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[Problem(s) to be Solved by the Invention] When a voice file new like before whenever it records speech information was created, there was a trouble that much voice files were created. Moreover, there was a trouble that the voice file as extra information to one image accomplished two or more works.

[0014] Consequently, in order to make voice to an image refreshable good, there was a problem that it will be necessary to prepare the file for link management which memorized the information which shows which voice file corresponds to an image file. Moreover, also when an image file was eliminated, it must stop having had to eliminate the voice file with reference to the file for link management, and there was also a problem of taking time and effort.

[0015] Moreover, if it did not refer to the file for link management that there is a voice file which is the extra information over the same image as the voice file searched in voice files other than the voice file which had it searched whether the extra information over which image the searched voice file is when the voice file memorized by the record medium in which computer reading is possible is searched by updating time amount etc., the trouble do not understand was.

[0016] This invention aims at offering the image pick-up equipment, the record medium in which computer reading is possible, and the voice file creation approach which solved the above troubles. Moreover, this invention aims at it being efficient and enabling creation of the voice file corresponding to an image file. Moreover, in case this invention deletes an image file, it also aims the voice file corresponding to the image file at offering the image pick-up equipment, the record medium in which computer reading is possible, and the voice file creation approach whose deletion is enabled easily. Furthermore, this invention sets it as the further object to offer the image pick-up equipment, the record medium in which computer reading is possible, and the voice file creation approach of having a new function.

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**DESCRIPTION OF DRAWINGS**

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[Brief Description of the Drawings]

[Drawing 1] It is the block diagram showing the gestalt of operation of the 1st of this invention.

[Drawing 2] It is the flow chart which shows the file creation processing by the gestalt of the 1st operation.

[Drawing 3] It is the rear view of the electronic camera by the gestalt of operation of the 2nd of this invention.

[Drawing 4] It is the block diagram showing the gestalt of the 2nd operation.

[Drawing 5] It is drawing showing an example of a screen which demands selection of the art of a voice file from a user.

[Drawing 6] It is the flow chart which shows actuation by the gestalt of the 2nd operation.

[Drawing 7] It is the rear view of the electronic camera by the gestalt of operation of the 3rd of this invention.

[Drawing 8] It is the block diagram showing the gestalt of the 3rd operation.

[Drawing 9] It is the flow chart which shows the file creation processing by the gestalt of the 3rd operation.

[Drawing 10] It is the rear view of the electronic camera by the gestalt of operation of the 1st of this invention.

[Drawing 11] It is drawing showing an example of the list of the files recorded on the record medium using this operation gestalt.

[Drawing 12] It is drawing showing a format of updating time amount.

[Drawing 13] It is the rear view of the conventional electronic camera.

[Drawing 14] It is the flow chart which shows the conventional file creation processing.

[Drawing 15] It is the flow chart which shows the registration processing to the conventional management file.

[Description of Notations]

21 Finder

61 Liquid Crystal Panel

62 Above Carbon Button

63 Down Carbon Button

64 Mark Which Shows Existence of Extra Information

65 Playback Section (Loudspeaker)

71 Display

72 The Vertical Direction Carbon Button

81 Art Chosen

101 Image Recording Subsystem

102 Voice Record Subsystem

103 Microcontroller of Camera System

104 Storage

105 Shutter Carbon Button  
106 Sound Recording Carbon Button  
107 Microphone  
108 Memory  
109 Repeat Display Carbon Button  
165 Security Switch

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[Translation done.]

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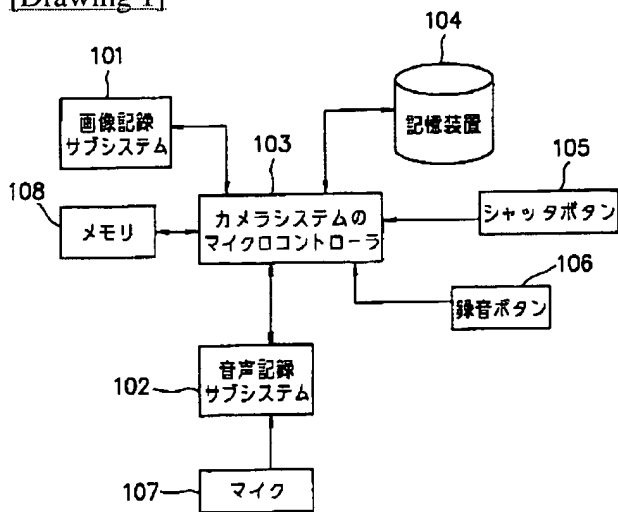
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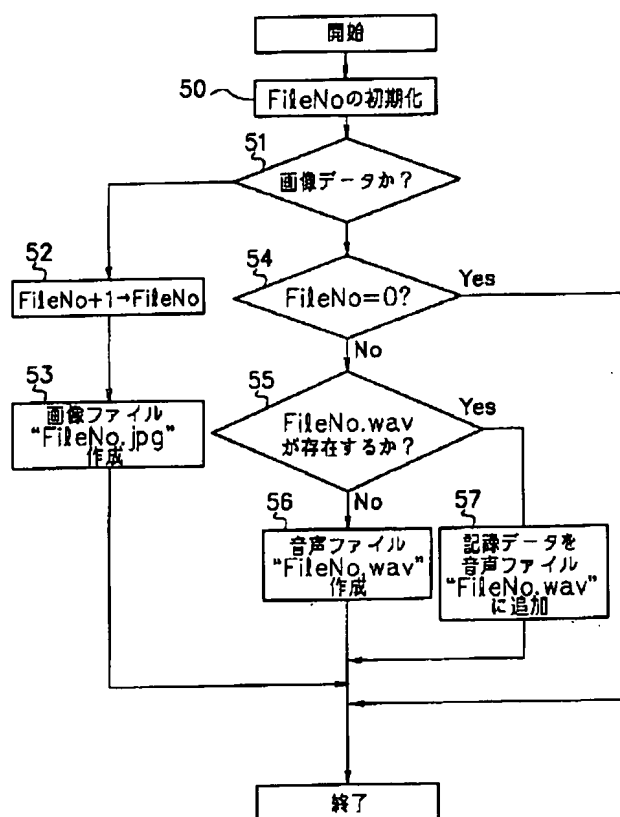
DRAWINGS

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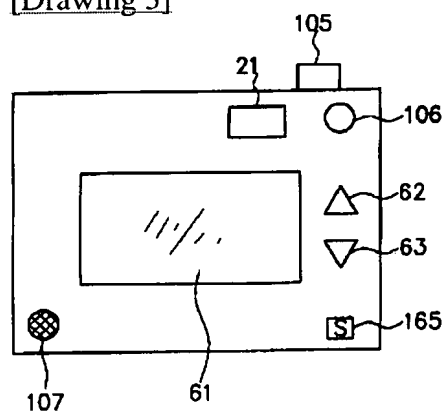
[Drawing 1]



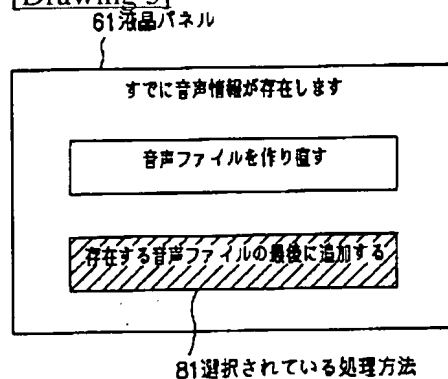
[Drawing 2]



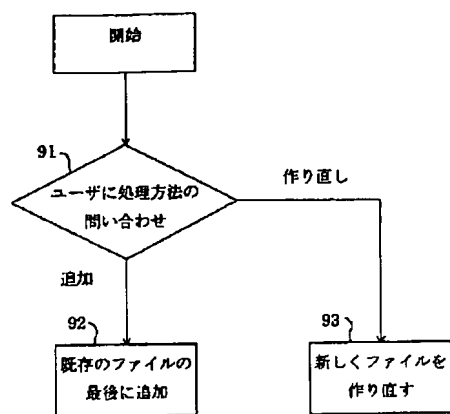
[Drawing 3]



[Drawing 5]



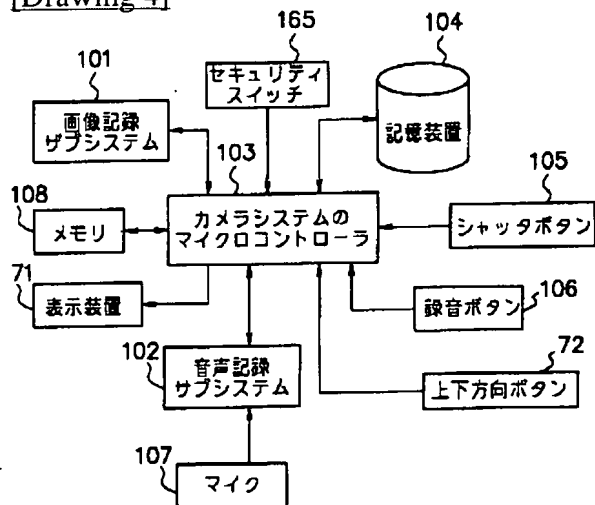
[Drawing 6]



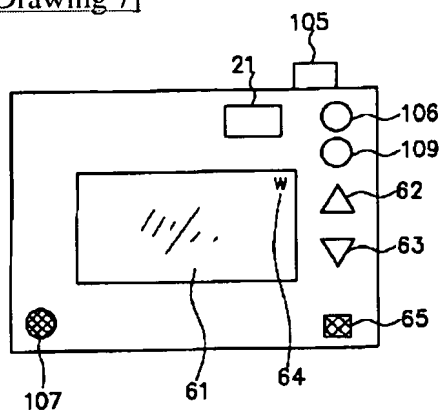
[Drawing 12]

月/日/年度

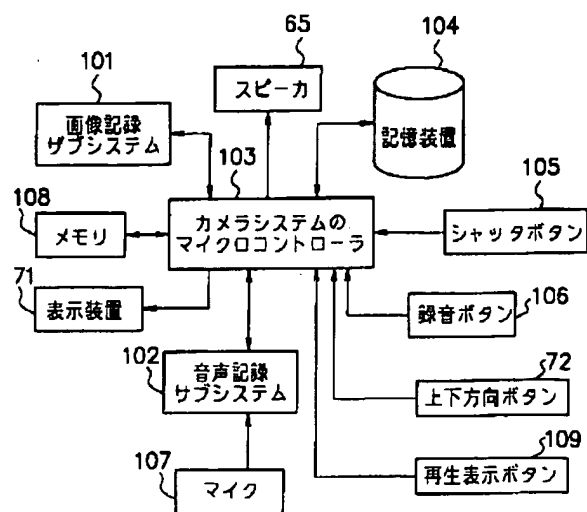
[Drawing 4]



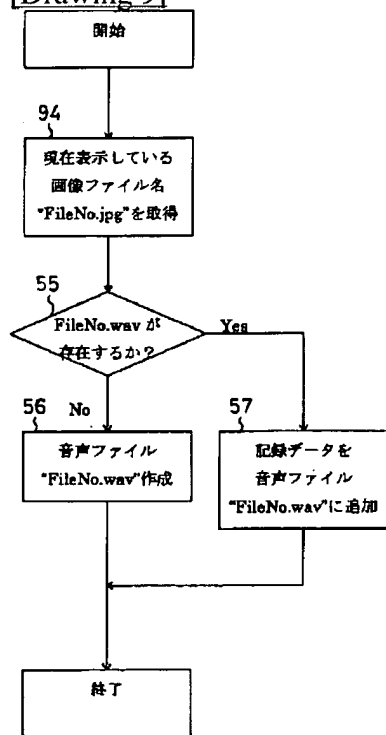
[Drawing 7]



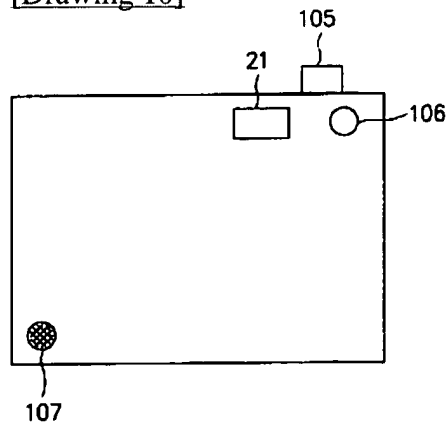
[Drawing 8]



[Drawing 9]



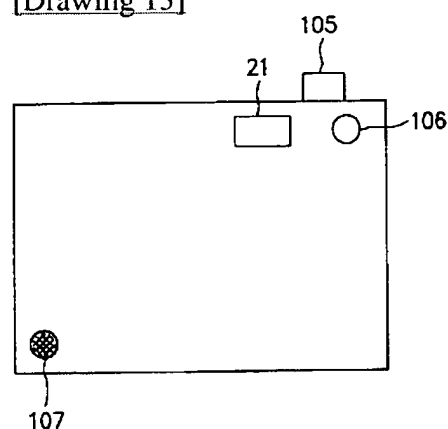
[Drawing 10]



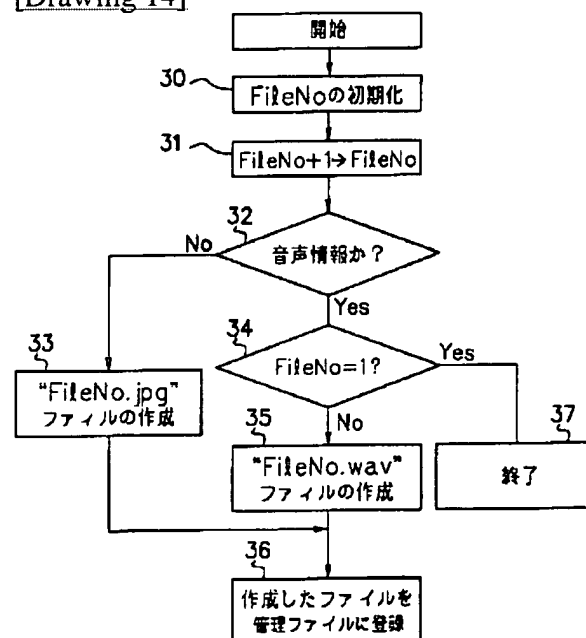
[Drawing 11]

ファイル名	更新時間
1.jpg	03/25/1998 12:00
1.wav	03/25/1998 12:10
2.jpg	03/25/1998 12:15
2.wav	03/25/1998 12:16
3.jpg	03/25/1998 12:30
4.jpg	03/25/1998 12:45
5.jpg	03/26/1998 13:00
5.wav	03/26/1998 13:01
6.jpg	03/26/1998 12:00
6.wav	04/01/1998 12:00

[Drawing 13]

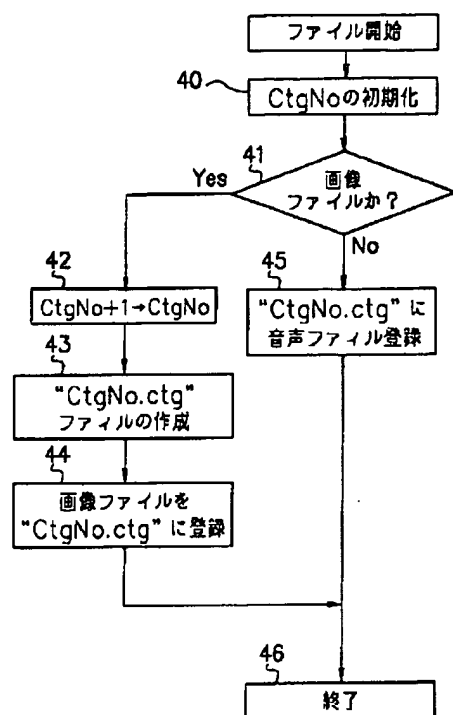


[Drawing 14]



[Drawing 15]





[Translation done.]